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"THE UTILITY OF COLLEGES OF PHARMACY."

AN ADDRESS

BY

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THE UTILITY OF

COLLEGES OF PHARMACY.

By Prof. LEWIS H. STEINER, M.D.

At the very inception of a new enterprise we know how important it is, carefully to consider the full nature of the field it is intended to occupy, the best means we should adopt in order to ensure a prosperous result for our labors, and, above all things, to fit ourselves well for the task undertaken. Should the enterprise be one of doubtful utility, it is better to look it calmly and deliberately in the face, seriously to weigh the expected results, and to reject all our plans as mere air castles,—than to find, after days of toil and nights of troublous thought, that disappointment and failure are our lot,—that all our enterprise has been expended on what was unnecessary and hence unappreciated by the discerning public. If careful reflection, however, should satisfy us of its utility, nay! of its absolute necessity,

then we may begin our labors with alacrity and spirit, hoping that they shall be appreciated by those for whom they were intended. The persevering spirit and the indomitable will may then be applied to the labor, and the result must be successful in some way or other, even if not in pecuniary gains.

Such, ladies and gentlemen, are the thoughts that come uppermost in the minds of those who prudently undertake new projects,—having first "counted the cost." You are assembled this evening to witness the inauguration of a new College in our prosperous and thriving community. Your presence bids its faculty hope that an approval of its objects is the result of your own thought on the subject. But you have the right to demand from its Trustees, from its Board of Instruction, whether they have discussed the subject of the utility of such Colleges with care and deliberation,—whether the necessity is instant and pressing for the establishment of one within your midst, —and whether the work, however great or small it may be, has been assigned to those who are fitted for its accomplishment. If the answers to such interrogatories should be satisfactory,—we feel that we have the right to demand your sympathy, and your hearty coöperation in our work ; if unsatisfactory, that a merited failure should be our reward, for it is far better that men should totter and fail in their undertakings, than that a community should encourage an useless and unnecessary enterprise, or distract one whit of its energy from the great and important claims of the age, to bestow it upon a doubtful or uncertain plan.

As a most interesting and important subject, it is proposed to glance at the rise and progress of the pharmaceutist's calling, and the advantages, to the community as well as himself, arising from the establishment of colleges where he can acquaint himself with those branches which are required for the successful prosecution of this calling.

Early in the history of the human race, before the mind had even ceased to wonder at the numberless beauties of the early Paradise, while the eye gazed in admiration at the *

> "Groves whose rich trees wept odorous gums and balm,
> Others whose fruit burnish'd with golden rind,
> Hung amiable, Hesperian fables true,
> If true, here only, and of delicious taste.
> Betwixt them lawns, or level downs, and flocks
> Grazing the tender herb, were interpos'd,

* Paradise Lost, IV.

Or palmy hillock, or the flow'ry lap
Of some irriguous valley spread her store,
Flow'rs of all hue, and without thorn the rose:"—

Early in the history of what is now clothed in all the mystic beauties of dream-land, though then a reality, we learn from the Sacred Record that sin came into the world, bringing with it *disease* and *death*. What is not included in these two words,—what of anguish and suffering to the human race, hours of pain and affliction, of bitter sorrow and keen soul-racking distress,—tears of grief and agony of affliction? From them spring the anxiety which makes the mother's heart throb with sadness as she waits by the bedside of the little infant, who draws life and sustenance from her loving breast,—the bitter anguish of the family at the suffering couch of a beloved and adored parent,—the anxious expectations and dread of the partner of toils and pleasures as she lingers by the side of the husband of her choice,—the weeping and wailing of friends as the strength and manly beauty, and giant mind and great loving soul of some fellow being is about to be lost to them for ever in this world. What hours of unwearying attention through the day, when the world, seemingly unmindful of the sufferings of the afflicted, is rushing along in its course for honor and gain,—through the night, when the quiet and silence makes each minute an hour of pain, each hour a week of heart-breaking anguish,—what sad hours are brought back to the mind by the mere utterance of the word—disease! All the disappointments, that failures in the contest for honor, station, or emolument may bring to the sensitive soul of man, sink into insignificance when compared with the wretchedness and despair that *disease* sows, with a liberal hand, among the sons of men. But the same Providence which sent the fell destroyer to close the earthly career of the immortal being,—which imposed the penalty of disease and suffering for the first great act of disobedience, has also taught man how its severest pains may be mitigated; and, if she so will, how the final close may be postponed to a future day. We read,* how, "The Lord hath created medicines out of the earth; and he that is wise will not abhor them. And he hath given men skill, that he might be honored in his marvellous works. With such doth he heal (men) and taketh away their pains. Of such doth the apothecary make a confection; and of his works there is no end; and from him is peace over all the earth."

* Ecclesiasticus xxxviii. 4–8.

The history of the various medicaments now employed in the treatment of disease, is enveloped in much obscurity. We are not able in the case of most of them to state when, where, or by whom they were first found to have a medicinal effect on the human system. Far back in the infancy of the race, by a happy accident, if we dare call such an occasion by that name, their properties have been discovered, or by unwearying experiment their efficacy has been determined. Gradually they have been made known to the world. At first communicated with solemn injunctions of secrecy, as heir-looms of priceless value, from teacher to student, from father to son, or with grave solemnity and mystic forms from village crone to a tried and trusty associate. Superstition would necessarily invest the substances, whose properties were thus made known, with more than real properties. It would in course of time gradually surround the *preparation* of the medicine with more importance than the substances which entered into its composition, and the rites and ceremonies then adopted, would be looked upon as the really efficient agents. Such a result might naturally be expected from those who were ignorant of the laws of science. The medicine man, among the aborigines of our own continent, by a series of meaningless rites and terrifying forms of procedure, endeavors to convince the bystanders as well as the sick, that his power is of a supernatural character. The physicians of the more cultivated nations of the globe, not many centuries ago, were not altogether devoid of a similar actuating cause. The more mystery surrounding the preparation of the potion, the more value was supposed to be conferred upon it. The prejudices of the people were availed of in order to control their faith and confidence in his skill. Articles of an inert or disgusting character were taken and combined with the really useful, and the whole was then inflicted upon the patient. The articles contained in the famous cauldron of the witches in Macbeth, were not very dissimilar from those at times forced into use by the practitioner of medicine in the middle ages. Full as outré and disgusting were some of the substances as the

> "Fillet of a fenny snake,
> Eye of neut, and toe of frog,
> Wool of bat, and tongue of dog,
> Adder's fork and blind worm's sting,
> Lizard's leg, and owlet's wing;
> * * * * * * *
> Scale of dragon, tooth of wolf:
> Witches mummy; maw and gulf

Of the raven'd salt-sea shark;
Root of hemlock digg'd i' the dark;
* * * * * * *
Gall of goat, and slips of yew,
Silver'd in the moon's eclipse;
Nose of Turk, and Tartar's lips;
Finger of birth-strangled babe,
Ditch-delivered by a drab."

But the day was near at hand when science should dawn upon the world, and such articles would necessarily be driven out of the practice of the medical man,—leaving their place to be supplied by others of real efficacy and value. From the dusky clouds of the Alchemist's cell, was to proceed a new and beautiful science, which should delight in extracting the effective principles contained in minerals and plants and animals, and irradiant with the enthusiasm of its youthful nature was to seek out ignorance and superstition in all their hiding places, and drive them from the abodes of men. Chemistry paved the way for the appearance of Pharmacy, and gave all the science which the latter possesses, removed mystery from the shop, and made the Apothecary assume a position worthy of him who was to be the Physician's support and assistance.

The origin of Pharmacy, or of that science which treats of "the preparation, preservation, and compounding of substances for the purposes of medicine," is intimately connected with the first appearance of Chemistry. Had the latter never existed, the former would have had no character worthy of the respect of the man of science. It would have consisted, at most, of magic formulæ, disgusting decoctions, inert compounds, and worthless modes of procedure. No enlightened person would have resorted to it, unless forced by the fear of impending death, and distrustful of the unaided powers of nature to throw off offending matter. The medical profession would have been unable to render relief, even when the nature of disease had been fully discovered and recognized as not necessarily fatal. Its cultivators could have never passed beyond the stage of mere students into the natural history of man,—his physiological condition and the pathological changes induced by disease, with probably a certain amount of surgical knowledge,—over to the high station they now occupy as ministers to his wants and his sufferings. Pharmacy was the science which was to invest them with a perfect armament for use in their professional labors,—to give as much certainty to their professional practice as fallible beings can be expected to possess. Its prosecution was to employ the aid of chemistry in its

widest sense, in its most potent processes, so as to ensure the full equipment of this armament.

How interesting does this connection of chemistry, pharmacy, and the medical profession appear to the student of science, interlocking and embracing each other as it were, until the lines which mark the borders become less and less distinct, and the three appear but as members of the great science of Nature,—parts of one vast organism which involves the constitution and properties of all bodies from the grain of sand by the sea-shore, the impenetrable adamant, the one-celled animal whose life is hardly established before its death is at hand,—the vegetable through all its ramifications of form and structure,—up even to the constitution of the brain itself of him who has been endowed with a certain degree of mastery over them all. All the parts of this organism are perfectly harmonious. No discordant sound is heard, but the loud swelling note of praise it sends up to the Heavens above shows that all are attuned by the same great Architect, who has taught man how to find out their hidden truths and sacred laws.

Pharmacy, with which as a profession we have especially now to do, did not spring up at once in all its strength and power from the seed sown by chemistry. Its first steps were like the first efforts of the infant to walk. Many a fall to the ground, many a lapse into the errors and superstitions from which it had just escaped, many a tottering step, was experienced, before it planted the foot securely on the firm basis of truth and advanced steadily forward, growing in time to the stature of an adult, remarkable for strength and beauty. How could it be otherwise when the lingering traces of old superstitions were still found, when the Amethyst was supposed "to make men sober and steady," the granite "to strengthen the heart and hurt the brain," the ruby "to take away idle and foolish thoughts and make man cheerful," the emerald "to strengthen the memory and stop the unruly passions," the diamond "to make him that wears it unfortunate;" when "the flesh of vipers being eaten was said to clear the sight, help the vices of the nerves and resist poison exceedingly," millipedes were said "to help the yellow jaundice," if bruised and mixed with wine, earthworms were considered "an admirable remedy for cut nerves," and oysters were believed as having the power of "drawing the venom, when applied alive to a pestilential swelling. It required a long time utterly to remove these lingering relics of an ignorant past, and to make way for the period when all should do, even as he who believed in all these fancied articles of the Materia Medi-

ca, and yet could preface his Dispensatory with the remark that "he consulted with his two brothers, *Dr. Reason* and Dr. Experience, and took a voyage to visit his mother *Nature*, by whose advice, together with the help of Dr. Diligence, he obtained his desire." By close study under the guidance of such tutors, and with the aids of chemistry, these fanciful properties of medicine were rejected and nothing retained that was not tried and approved by science.

The proper studies of the Pharmaceutist,—that is those which shall enable him to prosecute his calling with intelligence and certainty—are comprehended in the colleges of Pharmacy under three heads, Chemistry, Materia Medica, and Practical Pharmacy. The so-called science of Materia Medica embraces everything relating to the physical properties and therapeutic virtues of all those substances which are capable of producing a beneficial effect on the diseased body, and of removing injurious principles that may work detriment to the organism. Chemistry then steps in and claims the Pharmaceutist's notice, because it teaches him the properties of all these substances when they are brought into combination with each other, and whether the results of such combination shall be inert or of increased power. Finally practical Pharmacy shows how all this knowledge can be made available in the preparation of medicines for most efficacious administration. This constitutes the narrowest possible curriculum of studies that can be allowed him who devotes himself to the profession of Pharmacy,—should he feel disposed to investigate more fully the secrets of his calling, the whole domain of Natural Science is connected in some way or other with these three branches. Mineralogy and Geology, Entomology, Conchology, and Zoology in general will furnish him facts and information that can be of general use,—while Botany is almost indispensable as a guide to the recognition of the plants which experience has taught his predecessors and companions are invaluable for medicinal purposes. Thus the study of the sciences, which illustrate the three kingdoms of nature, makes him a master over their therapeutic properties, and he can with certainty procure from them all such as will be required by the physician. His knowledge need not, *should not* cease with those studies we have mentioned as absolutely necessary to fit him for the prosecution of his calling. In fact they only show him how he can walk along in the beaten track which has been laid out and planned by his predecessors. With them alone he will only be able to avoid doing wrong,—to avoid committing gross and perhaps fatal errors. But if he designs the attainment of a scientific position among his confrères, he must become

himself an investigator, and endeavor to find out new plans to attain old results, or new results from the application of old laws. The day is past, we hope, when the Apothecary can rest satisfied with being a mere dispenser of articles, of whose therapeutic properties he knows nothing, and which he only recognizes by their *physical* properties. His position as a scientific man should incline him to look more deeply and thoroughly into the nature of the substances with which he is thrown into daily contact.

Some one may object here that the kind of knowledge hinted at, will make him stride after the physician's office, and instead of being satisfied with his position as a preparer and dispenser of medicine, he will aim also at the office of prescription. Now we think that such will never be the result with a pharmaceutist, whose knowledge is wide and comprehensive. The very extension of any one's knowledge on a particular subject makes him modest as to his acquaintance with all others. He has learned how much time and care and labor is required to perfect one in a particular subject, and is hence disposed to prefer the results of others' labors in their own specialities, to the slight knowledge which *he* may have of them. It is not the highly educated and well-trained pharmaceutist who avails himself of every opportunity that offers, in order to exhibit his knowledge of therapeutics by prescribing for the sick. No ! where little knowledge exists of the proper subjects of his calling, we will find more arrogance as to the vastness of the mental capabilities and more presumption as to the necessity for their use. But when we find a conscientious appreciation of the difference in the two callings, and a comprehensive knowledge of his own, there we shall find one who avoids trenching upon subjects which do not belong to his own province and which interfere manifestly with the rights of the physician. The third article of the Code of Ethics, adopted by the Maryland College of Pharmacy, shows how thoroughly its members recognize the difference between the two callings, and how careful they are in drawing the lines which divide them. This article reads as follows : " As the diagnosis and treatment of disease belong to the province of a distinct profession, and as a pharmaceutical education does not qualify the graduate for these responsible offices, we should, where it is practicable, refer applicants for medical aid to a regular physician. The oft repeated assertion that many persons are not pecuniarily able to employ a physician, may be met with the fact that there are several excellent and well-managed Dispensaries where medical attendance and medicines are furnished gratuitously." Such doctrine we should expect

from the enlightened mind which has been devoted to any branch of study. It is the quality of knowledge not to vaunt its own merits, or to usurp the place of others.

In an enterprise like the establishment of a College of Pharmacy the physician has nothing to lose and everything to gain. His prescriptions will be prepared by a scientific man, whose education and daily practice especially fit him for the duty ; while he will have one on whom he can rely for the preparation of new chemical compounds to meet new therapeutic indications with certainty and success. The apothecary is then no longer a mere vender of herbs with miraculous healing powers, of minerals whose properties were asserted to be of the most contradictory and ridiculous character, or of animal products, whose disgusting nature forbids us almost to entertain the thought that they were ever employed for medicinal purposes,—he is now the aid and assistant,—the good Samaritan who offers the oil and wine when the physician may think the exhausted energies of the sick demand remedial applications.

But may not all the knowledge we have referred to as necessary to the Apothecary, be obtained by reading in the shop, by carefully examining, in an experimental way, into the properties and uses of his drugs, and by practically employing himself in the details of Pharmacy? This question would however serve as an objection against any and all education whatever, except that which a man acquires by his own unaided efforts. It is one, to which we dare not give a direct, categorical answer ; since a negative would not be truthful in some particular instances, and an affirmative would imply just as much error. We dare not, I repeat it, say that all this *might* not be accomplished, and has not been accomplished by some, whose perseverance and indomitable will, enabled them to conquer the difficulties which attend a private course of study. They have been enabled to gain a thorough and satisfactory knowledge, by dint of labor that few are equal to. The object of all teaching is to pave the way for the easiest possible acquisition of knowledge,—to furnish such guide-posts and finger boards along the road that the student shall not go astray, and wander in dark and obscure thickets by the wayside, but shall find that his easiest path is that which science illuminates with her own bright rays,—to free his mental vision from all error. It is not intended that the student shall be freed from all labor. For, there is no means of accomplishing mental labor, by appliances similar to those which the mechanic can contrive with the aid of steam or electricity. There is no royal road to learning ; no

rail-train up the Hill of Science. With all our ability to conquer high grades, yet such a steep is only to be ascended by the slow-toiling foot traveller. If he starts without a guide, he may get himself involved in the intricacies of the bushy undergrowth which surrounds its base ; allured by the leaping mountain stream, his footsteps may be checked by the marshy ground that it has formed in the little hollow through which it passes ; attracted by some inviting path he may find himself, after days of labor, at the point from which he started, having encircled the base instead of ascending the hill. But with untiring perseverance he may overcome all difficulties and reach a commanding height. The number of those however is few in all professions and callings, who have without aid and assistance, accomplished such a glorious result. We are proud to refer to them when we speak of what has been done by those who have pursued knowledge under difficulties. For the majority of mankind, however, guides must be procured who shall show where the best paths for the ascent are to be found, and who shall train the minds and judgments until they have acquired strength enough to grapple with difficulties without external aid, and ability to decide for themselves, which is the best path. The teacher occupies the peculiar prerogative of communicating to the taught, that which has been made familiar to his own mind by dint of special devotion to any subject, and thus preventing the consumption of strength and energy on that which may not require any such outlay. When the mind has become habituated to the work, like the tree which has grown stout and strong, it no longer requires props to support it, but, rejoicing in its own strength, encounters the storm with impunity.

Again, with private study there is a want of that system which ensures the most speedy success, and the most reliable results. The instructions of the college communicate system to the student's labors. He has presented to him by those who are conversant with the particular topic, in connected form, the laws which underlie its study, the facts which prove those laws and from which they have been deduced, and also the mode of investigation, by which other deductions may be made and other reliable facts accumulated.

Now to apply these ideas to the College of Pharmacy. The Materia Medica are presented to the student's mind in their relations to each other, and to the peculiar symptoms for which they are adapted. The striking points in the history of each are brought before him in a way that claims his attention. The eye is not only

impressed with these, but the ear at the same time, and thus the two senses are brought to act contemporaneously in the study. In chemistry, the results of others' labors as well as those of him who lectures, are brought before the student, experiment demonstrates the truth of the principles laid down in the text-book, and the science becomes a living, actual fact instead of a mere sequence of dry detail. The same is true of practical Pharmacy. While the regular work of the shop would in course of time familiarize the apprentice with nearly all the processes of this art, yet the rationale underlying these, and their connection with each other would hardly be appreciated.

We can then sum up the utility of the college as consisting in the presentation of the surest and swiftest method of gaining a knowledge of Pharmacy, in clothing this knowledge in an attractive form,—bringing out the most important points for the student's notice,—and in giving him a connected view of the relations of the whole subject, which require his attention. If the instructors in such an institution are enthusiastic in their vocation, honest and true to their duties, all these ends will be obtained. But besides these, who does not know the value of system in study, and of the assignment of a certain hour to certain duties ; and still more the importance of bringing those together who are prosecuting similar investigations, and causing mind to brighten by collision with fellow mind? This itself is of no small benefit. The youth feels the stimulus of laudable ambition, and enters with a generous and honorable rivalry into the field with his brethren. He lags not by the wayside, for he does not want to be recognized as inferior in abilities and diligence to his companions. Thus mutual emulation acts as the spur to the indolent, and a noble impulse to the industrious. If engaged in private study in the shop, he may easily be persuaded to relinquish his task for some other attraction, and no one will readily detect his negligence ; but if this is done here, the contrast is seen at once and odium rests upon him for it,—not only for the present but odium of that character which requires years utterly to irradicate.

In considering the utility of Colleges of Pharmacy, the subject naturally divides itself into three parts, relating to the different classes in the community interested in the matter. Let us then dwell for a short time upon each one of these divisions, and see how such establishments can be useful and protective to the Apothecary, the Medical Profession, and the community at large.

I. We have glanced at the necessity of instruction, other than

that acquired by means of private study ; now we give as one of the main reasons for the establishment of colleges, the fact that the Apothecary himself cannot, for want of time, communicate to his apprentices the varied information which is required of them for the proper prosecution of their calling. He is aided greatly by the instruction his apprentices receive in the lecture room. His own time, unoccupied by the duties of the shop can be devoted to private researches which will redound to the increase of the general stock of knowledge. A spirit of earnest desire is promoted on the part of the apprentice, to thoroughly understand a subject, so that he can not only be an efficient aid to his employer, but may eventually become a *Master in Pharmacy* himself. He rises above the position of a mere machine for mortar and pestle work, for trituration and decoction-manufactures, for unguent and plaster spreading, to that of an intelligent and reliable vender and dispenser of medicines. Neatness and cleanliness in his work, required particularly in this business, are cultivated by one who hears them systematically enjoined upon him in the repeated instructions of his Professors. There is need for their existence as he finds himself thrown into daily contact with his fellow-apprentices, and appreciates the fact that in the future contest for success, the world will favor him that seems most deserving.

The Apothecary is not tied down to his counter, when his apprentices begin to obtain a knowledge of the business, at once theoretical and practical. He has intelligent aids and feels no reluctance in leaving in their hands his reputation as a pharmaceutist, which is in fact done when he confides the preparation of his patron's prescriptions to their care. He is in the position of being able to communicate freely with his brethren at meetings, held from year to year, at different points of the country, and there by an interchange of views contribute to the advancement of the general fund of knowledge. He knows, in leaving home, his business is left with prudent and intelligent hands, and that no detriment will ensure. The complaint of the members of the American Pharmaceutical Association from country-towns, that they are often unable to attend its meetings, on account of the uninstructed clerks to whom they would be obliged to confide their business during their absence, presents strongly the necessity of a strict and systematic course of study for said clerks. The Apothecary feels, without an intelligent corps of assistants, that his absence can never result in anything but detriment to the establishment, and hence he is prevented from knowing what is going on outside of his little home circle, and availing

himself of the aid and assistance, which would be conferred by it.

Again, the relation of employer and apprentice becomes more intimate and confidential, as the latter shows an increasing store of knowledge. The inducement to impart information is naturally greater, when the recipient is giving proof of his appropriation of what has been communicated before, than when the uncultivated mind is ignorant of the uses of such information. Hence as the apprentice returns from the lecture-room to his place behind the counter, he feels not only that he has gained some fact not known before, but that the things of which he is ignorant, are numerous and extensive enough to employ his whole life, and he is more willing to receive instruction from the employer than ever. His reading loses that desultory and trifling character which marks the early years of most men's lives. It becomes professional, and has some relations to the varied branches of science. The trifling and ephemeral literature of the day, does not hold out the attractions it did before he caught a glimpse of the brighter and more permanent beauties which science presents ; and now if he is disposed to venture into the department of Belles Lettres, a more judicious selection of authors ensures him some real, substantial return for the time so occupied. But he finds that the history, nay even the poetry of science has the most attractive charms. Here he can combine the beautiful with the useful, and while laying up stores of knowledge that will come into daily use, he may gather flowers whose beautiful colors and fragrant odors shall please the eye and charm the soul of man. He becomes the better Apothecary, and the better citizen, for *every* man who has qualified himself with care in his peculiar calling, becomes an honor to the community, and of priceless value as a citizen.

And the well instructed apprentice, having closed his pupilage, and having commenced business for himself, will see from his own past experience how necessary it is that his own employés should have the same advantages and undergo the same character of training to which he was subjected. Thus generation after generation of men are fitted and trained for the profession, and its own dignity and importance increases with the increase of knowledge among its members. This is the case with all callings ; we learn to respect them more as the dissemination of knowledge among their members produces an elevation of their position. An art always becomes more dignified when we find its cultivators understand the science which underlies it.

Another advantage of Colleges of Pharmacy is in the fact that they eventually become depots for the storing away of new contributions to knowledge, from which the profession itself can afterwards draw with greater confidence than from any other available source, what has been done by its distant members. Journals occasionally give outlines of processes specious *in fact*,—may detail discoveries that are fallacious, as well as describe the new truths that have been garnered in by the patient and intelligent laborer. This is almost unavoidable. Their editors cannot always experimentally test the statements contained in the columns of other journals, nor even those of their own contributors. Hence this mode of diffusing information, so invaluable in many points of view, is liable to some objections, and cannot be compared with that, where the speaker not only announces the fact but experimentally demonstrates it, and satisfies the spectator both as to the result and the mode of operating to obtain it. The particular attention which is paid each to its *specialite* would lead us naturally to expect a more perfect acquaintance with its progress from the Professor than from those who are more specific in their private studies. The constant frauds carried on in the drug trade must be here investigated, and whatever sure and reliable means can be adopted for their detection should here be explained in the clearest possible manner. This point alone has become so important that a separate chair in the college might find its time entirely occupied with the adulterations of drugs, as practised by unprincipled, ingenious foreigners and Americans. Fraud has crept in and most wickedly has adulterated those articles which are to be relied on as safeguards from disease. Without the aid of scientific advice the apothecary is unfitted to judge of its effects. Science has been brought to bear in the manufacture of the fraud, and without the aid of the former the latter cannot be detected. This one point alone would require a more intimate acquaintance with the principles of science, in order to keep pace at least with the detection of the rascality of the times. Physical properties no longer serve as true tests of the purity of a drug, because the taste, the color, and the feel of the object may be perfectly imitated. We must go deeper into its examination to procure certain results. It may seem unnecessary to dwell upon the importance of this point, as those familiar with the subject will at once recur to countless forms of adulteration that have been invented during the past few years,—how quinia has been adulterated with starch, sugar, gum, sulphate of lime, mannite, stearine, margarin, salicin, cinchonia, and a score of other articles, more or less

inert and all inferior in specific properties to those of the pure alkaloid. The process of adulterations has invaded even our common articles of food and drink, and ingenuity has been taxed to bring large profits into the manufacturer's pockets, while the purchaser foolishly imagines he is procuring a very cheap and reliable article. The series of adulterations found in the coffee sold to our brethren of the British isles will make the extent of this recognizable to every one. We are told,* that "the coffee dealer adulterates his coffee with chicory to increase his profits—the chicory-maker adulterates his chicory with Venetian red, to please the eye of the coffee dealer; and lastly, the Venetian red manufacturer grinds up his color with brick-dust, that by its greater cheapness, and the variety of shades he offers, he may secure the patronage of the traders in chicory."

The science required for the detection of pure drugs, it will thus be observed, is associated intimately with that required for the detection of adulterations, and this can be best obtained from those, as we have said, who have devoted their talents and energies to the study, and who, by constant and repeated practice, have acquired facility in communicating their knowledge.

One other argument on this point and we shall leave it. The instruction of the college is superior to that of the shop, because it occurs under circumstances when the mind of the student is not liable at any moment to be distracted from the subjects under consideration. While in the shop, however much may be the patronage it enjoys, there will be, it is true, many hours of leisure which can be devoted to study, but there is always the liability of being called away just at the time when the investigation becomes most interesting. The mind cannot be so exclusively directed to the subject. But while in the college, the feeling that the hour has been set apart for a certain work, and that there is no probability of any intrusion, enables the student to devote his whole mental energies to the subject,—to take in everything relating to it. There is nothing to distract attention, and everything to induce it; his fellow students bent upon the comprehension of the subject, the preparations on the lecture table, the animated words of the speaker,—all these invite him to receive and master the principles of his calling.

II. But the establishment of Colleges of Pharmacy are of invaluable benefit to the Medical Profession. Now, no two classes of men are more intimately connected than Physicians and Pharmaceutists,—more absolutely dependent upon each other, according to the

* Johnson's Chem. of Common Life, I. 218.

division of duties which the progress of knowledge has determined to be necessary. In olden times, the two were combined in one person. Knowledge of the branches peculiar to both was by no means extensive enough to require a separation. The leech could compound the medicines that his studies had revealed to him, with as much certainty as the science of the times could furnish. But what was *that* science? Let us recollect this was in those days when all surgery was practiced by barbers, and that *it* was considered by no means as the most respectable of the barber's various employments. Let us recollect that this was at the time when the medical man required all possible mystery in order to keep the people from knowing his treatment, and to excite, as much as possible, faith in him and his remedies. But when his knowledge increased, it became evident that the preparation of medicines was an occupation of sufficient magnitude and importance to require the undivided attention of one person. The physician resigned this portion of his old duties, which had become rather irksome, since his attention was required by other branches of more immediate interest professionally; and, unless in country towns and villages, where circumstances prevent the separation of the prescription from the preparation of remedies, the two are kept absolutely distinct.

Who can have more interest in the thorough education of the apothecary than the physician? Is not his reputation concerned in the result of every prescription he makes, and which he confidingly sends to the shop for preparation? His adjunct in the proper management of disease is the apothecary; all his prescriptions are based upon the perfect fitness of the latter. The combination that he adroitly throws together, of substances, whose therapeutic properties his experience tells him are likely to produce the desired effect, is worthless, and it may be worse, unless the prescription shall be rightly interpreted and properly prepared. Is not, then, the education of the Pharmaceutist a matter of vital importance to the physician? The latter labors, from his first entrance into his preceptor's office, to acquaint himself with the structure of the human frame,—toils over the dissection table until its recondite mysteries are clearly revealed; scrutinizes carefully the functions of respiration and circulation, of digestion, assimilation, and excretion; examines the development of the mystery of life from its starting point, the wonderful organic cell up to its full completion—the adult man; studies how he may bring relief after injuries which produce results requiring surgical skill and the aid of the knife; investigates the mysterious action of remedies

upon abnormal actions and morbid substances in the human frame; constrains all branches of science to pay their homage to the court of Æsculapius, and with generous rivalry to pour out, from Cornucopiæ of treasures, rich and priceless gems for the aid of suffering humanity, too well satisfied if they can only be found available in the philanthropic exercise of the physician's art; devotes time, and talent, and assiduous labor to the investigation of disease and the alleviation of its most pressing and urgent wants,—finds nothing too much for him to give in order to compass the duties which devolve upon him, as a High Priest of Nature's inmost sanctuary. And all this, with inadequate returns, both pecuniarily and otherwise, for his mental and bodily labor, and sometimes met with contumely and reproach, because he cannot accomplish that which is impossible to fallible beings, and only within the reach of Omnipotence itself. I hesitate not thus to speak of the energy and self-sacrificing spirit of the medical profession,—and in this way to bear my own small tribute of respect and grateful admiration. Let them be honored by their fellow men with the rewards, which a due appreciation of their merits will demand!

With all the vast fund of knowledge possessed by the physician, he is still dependant upon the pharmaceutist for the completion of his arrangements in the treatment of disease. The latter is his constant and necessary associate,—the instrument for carrying out most of his conclusions and orders with reference to the sick. If the physician requires years of study to fit him for the treatment of disease, surely he requires that the dispensing apothecary should have a proper training as to the preparation of his prescriptions. His confidence in medicines will be of little worth, unless he can be assured that they will be furnished of a pure and unadulterated character, and compounded with accurate scientific skill. How often have not his most sanguine expectations been frustrated by the administration of a weak and adulterated article, instead of one of the proper strength and purity as contemplated in his prescription? The most serious results have also occurred from the ignorant mistakes of those who were unfitted for their business, and who have substituted some powerful alkaloid for a simple medicament prescribed. Where absolute dependance is so necessary, as in the relation of the physician and the apothecary, there should be no cause at all for the slightest ground of fear that *that* might be misplaced. Every thing demands the most thorough ability to represent the physician's order,—the sleepless eyes of the mother as she hangs

over the couch of her beloved, — anxious and excellent friends watching the crisis of disease,—sorrowing children hanging with all love and tenderness around a patient's bed,—the shriek of pain and the wail of affliction,—all demand it. Suffering humanity, that has placed itself under the care of the medical man and with an abiding confidence is awaiting the result of his thought and his advice, demands it. Nature herself, who has supplied alleviating cordials and healing balms, demands it. All that has to do with the secret emotions of man, with his hours of affliction and suffering, with his relations to nature and his fellow man, requires that the apothecary should be "*an intelligent adjunct to the physician in combatting disease.*"

Now as we have shown that proper preparation can best be obtained in the College of Pharmacy, we trust that the point is proven, of how great an utility these institutions are to the regular practising physician. We can well understand the sound judgment which dictated such language as the following in "the Address to Druggists and Apothecaries," adopted by the American Pharmaceutical Association, that the apothecary "should cultivate a good feeling toward the medical practitioners of his neighborhood, should study the interest of the latter, so far as the efficiency of medicines is concerned, and physicians will soon, from interest, incline toward him." We may add a still more powerful motive for such patronage on the part of the physician, and say that from *necessity* it would be conferred. The reliable apothecary is an invaluable treasure to the physician, and he will, by a natural course of things, find him out. It is as a shield and protection against deplorable ignorance and bungling inexperience that he will patronize him, and throw the weight of his influence for the support and maintenance of his shop. The ammunition required in his continuous warfare with disease must be supplied from an arsenal, where all is kept in efficient, working order.

Is it too much, then, to ask that medical men should acknowledge their anxiety to have a host of scientific apothecaries—a band of reliable dispensers of medicine—by lending the countenance of their influence to every attempt, well-conceived and judiciously-planned, for the foundation of a College of Pharmacy? It is as necessary that the most convenient and available means be adopted for the proper education of the pharmacentist, as it is that every effort should be used to increase those for the training of the physician, at least so long as prescribing and dispensing shall be the duties of two dif-

ferent persons. We claim that the physician should give every aid and encouragement to such changes; and that he should discountenance all those who have disdained to employ the advantages of these colleges, where such have been placed at their disposal, full as much as he would hesitate to consult with one who had not passed through a medical college in the preparation of his preliminary education. This, of course, applies to cases where collegiate advantages have been within reach of the pharmaceutist. Where this has not been the case, the physician will always discriminate between him who has fitted himself by the advantages within his grasp, and one who has neglected so to do.

III. Lastly, we wish to dwell for a few moments on the utility of Colleges of Pharmacy to the community at large,—or rather, on the importance of having educated pharmaceutists to dispense the prescriptions which the attending physician has ordered. It is not only the matter of reputation with these, as with the pharmaceutist and the physician, which makes it desirable that a high character of education should be established for the dispenser of drugs. Life is often concerned. A mistake is not only an indication of ignorance on the part of the apothecary, but it may be death to the patient. The possibility of such an event as the fatal termination of a case, where a wrong drug has been substituted for the proper one, may not only exist, but quite a number of cases, illustrative of this, have occurred. The newspapers, from time to time, tell us how strychnia has been substituted for morphia, oxalic acid for sulphate of magnesia, arsenic for a number of white powders, which it may resemble in physical qualities, and other blunders of a similar kind, and how the mistake has resulted in the loss of life. We say there is no protection for the community, when implicit reliance is placed in a pharmaceutist who is ignorant of his business, and the sciences on which it is based. It is like permitting a man to walk through a cellar, where a great quantity of powder has been stored away, with a lighted candle. He may pass through, time and again, and no evil result; but the time may come when a spark shall ignite the powder, and destruction will be certain. The danger, however, of such a result, is always imminent. And the ignorant apothecary may dispense medicines for a long time, and no harm result; yet, there is a fear always to be felt, that the time may come when a sad result may attend such ignorance. We need not only expect that the people will recognize in a negative way the necessities of Colleges of Pharmacy, but rather expect to see them demanding them most positively from the profession itself. The

health of friends and families depend upon it; the prescriptions of the physician are null and void without the educated ability to put them up. While they demand that their medical attendant shall know his business thoroughly, they should in all justness and fairness ask the same of his adjunct.

Then, as a protection from the injurious effects of ignorance, we do not hesitate to claim the support of the community at large to all such enterprises. As wide a difference exists between him who intelligently prosecutes the business of the pharmaceutist and the mere bungler, as between the preparations which the pharmaceutical chemistry of the present day furnishes us, and the horrible decoctions which superstition prepared centuries ago, with all imaginable terrifying rites, for the cure of disease. In the one case there is truth and certainty—in the other ignorance and stupidity.

Not only may positive injury be inflicted by the substitution of powerful drugs for weaker ones, but the opposite substitution may result fatally in cases where the immediate action of a powerful one was required. Again, reliance can only be placed in the apothecary for the purity of his stock. If inert impurities are present, which is mostly the case where adulterations are employed, then we have the second difficulty just named. In any case, the effects of both the medicine and disease are trifled with, and all because the individual dispensing them has not properly fitted himself for his business. The community is bound in self-defense to further the interests of institutions for this kind of instruction.

We have thus endeavored to show the utility of such Colleges to the three classes just mentioned. It remains for us to add a word on the propriety and necessity of establishing one in this community. The advantages of such an Institution mostly remain in the city where it is located, although its graduates by slow movements invade the country and bear with them the influences of their collegiate training. Their movements however are slow, and hence wherever the size and population of a city demand the presence of a large number of Pharmaceutists, the necessity arises for the establishment of a college where they can be properly indoctrinated in the essential elementary branches. The period of time usually passed in attendance on lectures is during the apprenticeship of the clerk, and hence the college must be brought to his door. He cannot seek it as the medical student, because his occupations forbid. His shopwork must take place at the same time with his attendance on Lectures, and this is right, since the two properly go together, and should not be separated. The

apprentices of Baltimore cannot leave the city to attend Lectures in Philadelphia or any other place, where the inducements may be very great, but on the other hand, the same conveniences must be brought to their door that are possessed by these other places, so that while at home they can obtain the necessary knowledge.

With such conviction the Trustees of the Maryland College of Pharmacy have made arrangements for the establishment of suitable courses of Lectures for the education of the young pharmaceutist, and this day we thus publicly inaugurate the college. On the part of the Faculty we assure the community that every endeavor shall be made to give such instruction as will combine science with practice, the theory with its experimental illustration.

Whether this enterprise shall succeed or fail, depends on the interest those persons we have considered as especially concerned in it, shall take by way of encouraging and holding up the hands of those engaged in its prosecution. With, however, the most abiding confidence in the enthusiasm and intelligence of our citizens we thus launch our vessel on the ocean of time, with the hope that prosperous breezes and all good omens may attend its way through future years.